



## Department of Energy

Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352  
FEB 25 1994

0035357  
Incoming: 9400843

94-RPS-140

Mr. J. McCormick, Director  
Air and Toxics Division  
U.S. Environmental Protection Agency  
Region 10  
Mail Stop AT-082  
1200 Sixth Avenue  
Seattle, Washington 98101

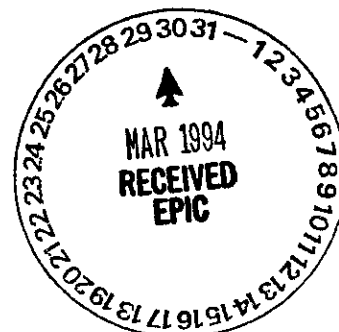
Dear Mr. McCormick:

### PERMACON NOTIFICATION FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

On October 6, 1993, a meeting was held with the U.S. Department of Energy, Richland Operations Office and the State of Washington Department of Health (DOH) for discussion and approvals on permitting issues. One of the agenda items was the addition of a PermaCon containment to the 2402-WK Building at the Central Waste Complex in the 200W Area. The request was approved by the DOH. This approval process, by means of a verbal presentation at a meeting, does not include notification to the U.S. Environmental Protection Agency (EPA) as does a written application. The purpose of this letter is to transmit information to the EPA to accomplish this notification in compliance with 40 Code of Federal Regulations 61, Part H.

The project consists of the installation and usage of a commercial "Permacon" containment addition in the 2402-WK Building. This small structure serves the purpose of a plastic "greenhouse" for the containment of radioactive particulates and will be used for opening and verifying the contents of stored barrels of potentially contaminated soil. The Permacon enclosure is equipped with High-Efficiency Particulate Air (HEPA) filter emission control, which exhausts through the building's ventilation system. A description of this facility and an evaluation of emissions from it are contained in the Enclosure.

The calculated emissions have a worst case Effective Dose Equivalent to a Maximum Exposed Individual of  $9.1E-7$  mrem/yr with HEPA filtration. The planned date for initial use of the enclosure is February 28, 1994.



Mr. J. McCormick  
94-RPS-140

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Should you have any questions or comments regarding this application, please contact me or Mr. S. D. Stites of my staff on (509) 376-8566.

Sincerely,

*James D. Bauer*

James D. Bauer, Program Manager  
Office of Environmental Assurance,  
Permits, and Policy

EAP:SDS

Enclosure:  
Application for Approval

cc w/encl:  
Administrative Records  
B. J. Broomfield, WHC  
J. J. Luke, WHC

94022077

Application for Approval for the Addition of a PermaCon Facility to  
Buildings at the Central Waste Complex

Introduction

A. Notification Requirement and Guidance

This document serves as an application for an Approval of Construction, pursuant to the requirements of 40 Code of Federal Regulations (CFR) 61.07, for the modification of an existing steel storage building by the installation of a prefabricated modular containment.

This document has been developed in accordance with guidance provided in a letter, Jerry Leitch, U.S. Environmental Protection Agency (EPA), to J. D. Bauer, U.S. Department of Energy, Richland Operations Office, dated January 20, 1993.

The January 20, 1993 letter, from the EPA states that "...any construction or modification of a radionuclide emission source at the Hanford Site requires an application for approval to EPA, even if the emissions are estimated to be less than the 0.1 mrem per year criterion previously used for exemption." The EPA also stated that the information currently provided to the State of Washington Department of Health (DOH) would provide a sufficient basis for the review of previously exempt sources, pursuant to 40 CFR 61.07. The information in this document was provided to the DOH at a meeting held on October 6, 1993. This document, then, serves as an application pursuant to the guidance provided in the January 20, 1993 letter, for a PermaCon addition at the Central Waste Complex.

B. Proposed Modification Background Information

The PermaCon containment is a prefabricated containment structure assembled from 4 X 4 and 4 X 8 panels of various designs. The assembly is reasonably airtight and can be equipped with High-Efficiency Particulate Air (HEPA) filter for the inlet and/or outlet ventilation air. Also, the internal air flow is directed to minimize the contamination of personnel working within it.

The specific PermaCon enclosure to be used for this task will be 16 feet square by 8 feet high and will be installed into the 2402 WK Building, which is one of the steel storage buildings supplied by Butler Building Systems to Westinghouse Hanford Company specifications. The units will be used for opening drums of low level mixed waste for sampling and verification, of the contents. The drums to be verified contain soil from clean up operations at the tank farms. It is anticipated that a maximum of 1,500 drums will be opened at the rate of 600 per year. The operation will be limited to opening one container at a time.

As noted above, the enclosure is self contained with a HEPA filter at the exhaust of the enclosure. The exhaust from this filter is ducted to the building ventilation system, which is monitored with TED's at each of the six outlets and then exhausted to the atmosphere. An assessment of factors affecting emissions follows.

### 1. Description of the Operation

Drums of waste from clean up operations are presently in storage and, in some cases, lack adequate identification and require verification of their contents. One drum at a time will be moved into the PermaCon enclosure, opened, sampled, verified, closed, and returned. Verification may include probing for objects. It will be an operational requirement that both the containment's and the building's ventilation systems be in operation while examination activities are in process.

### 2. Description of the Potential Contaminants

The drums to be examined are a group of 1,500 containing waste from soil cleanup activities at the tank farm areas. Thus, soil is the main constituent. Toxics are not detectable based on sample tests performed to date although certain toxic substances are expected in the tank farm areas. Measurements to date have shown that they are not of a high enough volatility to cause an emission problem, however. A Draeger sample will be obtained from each container for volatile materials. Air sampling will be performed for toxic and combustible screening.

The radionuclides typically found in the tank farm areas are numerous although they are normally diluted or dispersed from a spill and will not be in concentrated doses. Since all of the containers have been surveyed externally, Type A limits will not be exceeded.

### 3. Analysis of the Effective Offsite Dose

The radionuclides typically found in the CWC are numerous. The primary radionuclides are  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$ . For these calculations, it is estimated that the ratio of each of these two radionuclides to the entire inventory is 50 percent.

In a worst case scenario, up to 1,500 mixed waste drums could be opened in the PERMACON unit at the CWC at a rate of 600 per year. This, then, is used as the activity rate for normal PERMACON operations as the most conservative condition.

Assume no HEPA filtration: Basis is WHC-CM-7-5, Section 2.5.3.2

LLW activity per drum: Type A limits<sup>a</sup>

Respirable fines per drum from the SAR: 1 percent

Release fraction from the SAR: .0001

Amount emitted during normal operations:

$$\text{LLW } (^{137}\text{Cs}): \frac{10 \text{ Ci}}{\text{drum}} \times \frac{600 \text{ drums}}{\text{year}} \times .01 \times .0001 = \frac{.006 \text{ Ci}}{\text{year}}$$

The conversion to mrem is  $1.42 \text{ E-2 mrem/Ci}$  for the 200W area<sup>b</sup>.

$$\text{Thus, } .006 \times 1.42 \text{ E-2} = \underline{8.5 \text{ E-5 mrem/yr}}$$

$$\text{LLW } (^{90}\text{Sr}): \frac{0.4 \text{ Ci}}{\text{drum}} \times \frac{600 \text{ drums}}{\text{year}} \times .01 \times .0001 = \frac{.00024 \text{ Ci}}{\text{year}}$$

The conversion to mrem is  $2.6 \text{ E-2 mrem/Ci}$  for the 200W area<sup>b</sup>.

Thus,  $.0024 \times 2.6 \text{ E-2} = \underline{6.2 \text{ E-6 mrem/yr}}$

The total unfiltered offsite effective dose equivalent is  $8.5 \text{ E-5} + 6.2 \text{ E-6} = \underline{9.1 \text{ E-5 mrem/yr}}$

The protection provided by the HEPA filtration allows a  $10^{-2}$  reduction for a net value of  $9.1\text{E-7 mrem/yr}$ .

<sup>a</sup> Although the CWC SAR does allow for the storage of greater than Type A quantities of radionuclides, very few of these packages are expected to become part of the CWC inventory and none will be processed in this operation.

<sup>b</sup> 10 m. stack CAP-88 data from "Unit Dose Calculation Methods and Summary of Facility Effluent Monitoring Plan Determinations," WHC-EP-0498, November 1991.

#### 4. Facility Radiation Monitoring Instrumentation

Based on the calculations for air emissions and the WHC Environmental Compliance Manual WHC-CM-7-5, Section 2.5, there is neither a requirement nor a need for permanent monitoring equipment. The building enclosing the PermaCon has six air exhaust outlets with a fixed TED at each one. The TED papers are examined weekly and will provide an indication of any other controls that may be required. The PermaCon enclosure is not equipped with radiation monitoring instruments for the ventilation system. The work areas will be safeguarded with portable equipment as will be determined by a safety evaluation, which will be completed before the facility is made operational and will be reviewed with any changes in the characteristics of the waste being examined.

# CORRESPONDENCE DISTRIBUTION COVERSHEET

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**Subject:** PERMACON NOTIFICATION FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

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